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A. I. A. File No. 21-D
Stucco



Improving and Extending the Uses of Concrete with Con-Tex*



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Producing Permanent Stucco Work on Concrete

Bulletin No. 5 ~ Series 1928

CONCRETE SURFACE CORPORATION
342 Madison Avenue New York City

A. I. A. File No. 21-D
Stucco

*Use of this slogan by permission of Portland Cement Association

What Con-Text is and how it is used to Surface Concrete



CON-TEXT is a free-flowing, quick-drying liquid, applied to forms, or, in top-surface work and in stucco work or mortar-finish work where there are no forms, applied directly to the surface of the fresh concrete, stucco or mortar, for the purpose of producing a

superior and permanent surface finish thereon.

Con-Text, whether brushed on forms or applied directly, surfaces concrete or stucco or mortar by preventing the setting of the cement *at the surface only* and to a predetermined depth. This depth of action is dependent upon the "grade" or strength of Con-Text used as described in detail in the text of this brochure.

When the interior of the concrete or mortar has hardened in the normal manner, this sand-like, unset surface produced by the Con-Text action is readily removed by brushing-off, thus exposing the aggregates either for beauty or for bonding or other utilitarian purposes.

Con-Text has no continuing action. Con-Text is not acid or harmful, so that it may be used with wood or steel forms. Con-Text will not affect old concrete or set and hardened concrete.

Con-Text when applied before final set and used according to directions, surfaces any concrete made with any good sand, stone, gravel or slag or any other aggregate commonly employed, and with any Portland cement or with Special cements, such as quick-hardening Portland cements, or White Portland cement or Lumnite cement.

The only labor required is that of applying Con-Text, either to forms or directly to surfaces and brushing off the loose material at the surface kept unset by Con-Text after the unaffected cement has hardened.

The only tools required are a three knot bristle roofer's brush or a standard bristle paint brush for apply-

ing Form Con-Text; a soft bristle brush or a spray machine, either hand or power, for applying Top Surface Con-Text or Stucco Con-Text; and wire brushes or (in the case of floor-slab tops, roadway surfacing and like uses) wire brooms for removing loose surface material as a finishing operation.

The two general kinds of Con-Text bear names that are self-explanatory.

Form Con-Text is used by painting it on forms before concrete is cast. It dries quickly and forms a *hard, weather-resistant coating* on the forms, whether they are steel, or wood, or other materials.

Top Surface Con-Text is used by applying it by soft brushes or by a spray, directly on the concrete itself, as in surfacing roadways, floor slabs, plaza areas, etc. It dries more slowly but *forms a soft film* over the concrete, which may be easily brushed off at the proper time.

Stucco Con-Text is a variety of Top Surface Con-Text, specially adapted for use on stucco. It is sprayed on or brushed directly on the stucco after screeding and troweling and gives a very light reveal.

Both Form Con-Text and Top Surface Con-Text are made in four "grades" or "strengths" each. These grades are: *Light, Medium, Heavy and Bonding grades.*

By these several strengths or "grades," a reveal, or depth of uncovering suited to the size of aggregate of the concrete, may be readily had.

Bonding Grade Con-Text, as its name indicates, reveals stone to a depth best suited for bonding of materials later to be applied, such as plaster, stucco, tiling, cork, waterproofings, etc., etc.

Stucco Con-Text is made in one grade only, suited to a very light reveal as a surface finish on stucco.

All of the above kinds and grades of Con-Text are supplied in 1 gallon and 5 gallon containers only.

* * * * *

Specifications for Con-Text and the uses of Con-Text treated herein are at the end of this brochure.

Specifications for concrete are on the back page. These specifications will well repay any study devoted to them and will be found practical in the field for any and all uses of concrete.

NOTE: The 1928 Series of Brochures on Con-Text and on Concrete Construction comprise the following:

No. 1—Producing Texture and Color in Concrete Construction.

No. 2—Producing Bonding Surface on Concrete for Plaster Bond, Stucco Bond, Floor-topping Bond, etc.

No. 3—The Con-Text System of All-Concrete Construction for Buildings.

No. 4—Surfacing Roads and Pavements with Con-Text.

No. 5—Producing Permanent Stucco Work on Concrete.

No. 6—Producing Locked-on Waterproofing Surfaces on Concrete.

No. 7—Producing Plaster Bond Surfaces for Plastering on Concrete.

No. 8—Producing Bonded Concrete Floor Surfaces free from Cracking, Dusting and Scaling.

Any or all of these Copyrighted Brochures may be had on application to

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Exterior Concrete Surface prepared for Bond with Stucco by Form Bonding Con-Tex.
Mare Island Hospital, U. S. Navy Yard, San Diego, California.

Producing Permanent Stucco Work on Concrete with Con-Tex

CONCRETE AND STUCCO as conjoined terms too often convey to experienced builders an unfortunate sense of the undesirable and do not bring to the mind's eye visions of majestic, beautiful and permanent constructions that embody all that is best in engineering and architecture today.

Few regions are sufficiently mild and favorable climatically for stucco applied over concrete that is unsurfaced for bond, to endure beyond a very limited time. The value of concrete itself as a structural wall is beyond question. The adaptability of stucco to excellent results when applied on a proper base is also recognized. But stucco over unsurfaced concrete has, in the past, proven largely a poor bet, for the stucco soon has come loose in greater or less patches; and in too many instances, a structure anything but pleasing has resulted after a brief time.

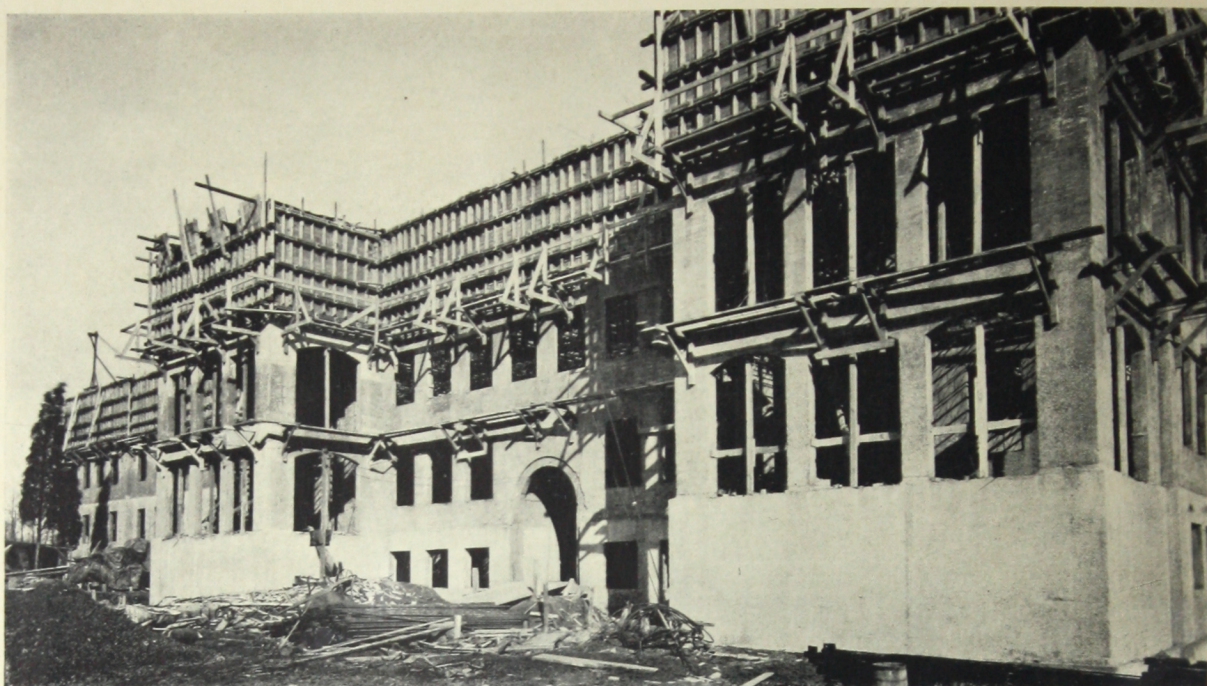
Furthermore, stucco, even when up into nondescript "textures" by more swipes or less swipes of a trowel or float,

has the monotony about it due to the hydrated surface cement, 'dead in texture and dead in color, which covers whatever of colorful materials, no matter how excellent, that may be in the stucco. Except for freedom from form blemishes and regularity of line, an old type stucco finish has little to recommend it intrinsically over rough cast concrete, for both are dominated by the color of cement.

New Abilities Through the Use of Con-Tex

But thanks to Con-Tex, these old disabilities of both concrete and of stucco are done away with; and stucco over bond-surfaced concrete has become a most valuable and attractive type of construction that now is in extensive and satisfactory use.

In order to appreciate this new utility for concrete and for stucco, and to realize the important economies offered by the combination of the two, some underlying principles should be understood.



New Rockland County Hospital, Orangeburg, New York. Exterior Surfaces Bond Surfaced for Stucco to be later applied.
State Department of Public Works, New York, Designers. The Niewenhouse Company, New York City, Constructors.

The Principles of Successful Use

The first principle is: that while concrete is structurally excellent, the skin surface that is on all concretes will not bond permanently with any plastic materials, such as stucco, that may be later applied to it. The reasons for this are fully set forth in the Con-Tex book on Bonding Surfaces on Concrete.

The second principle is: that all materials, such as stucco, plaster, cement mortars and so on, will unfailingly and permanently bond with surfaces of clean sand and clean stone.

Early Attempts to Get a Bond Surface on Concrete

It has further been recognized that just below the usual surface skin or "form skin" of concrete lie endless quantities of stone, though covered by this skin. And to get at them so that a clean, bond-surface might be obtained, countless efforts have been made to physically mine out these pay nuggets by hacking or bush hammering the surface skin away.

If muscle, superintending patience, understanding of the necessities and proper tool points are present on each job and in sufficient quantities, a fair bonding surface might be obtained by these means. But unfortunately, the result usually obtained is unsatisfactory for one reason or another, so that early loosening results, followed sooner or later by scaling and peeling of the stucco.

The Full Area, Clean Stone Con-Tex Bond Surface

But by means of Con-Tex, a full-area bonding surface of clean stone is obtained (and without quality or sufficiency argument) by substituting applied science for brute strength. To this

rough, clean-stone Con-Texed surface, all applied materials will bond in a firm and lasting union—a union that makes these applied materials (such as stucco) adhere to and cohere with such integrity and such strength that even hammer blows, repeated even to the pulverizing of the stucco and of the concrete beneath, will not loosen one material from the other.

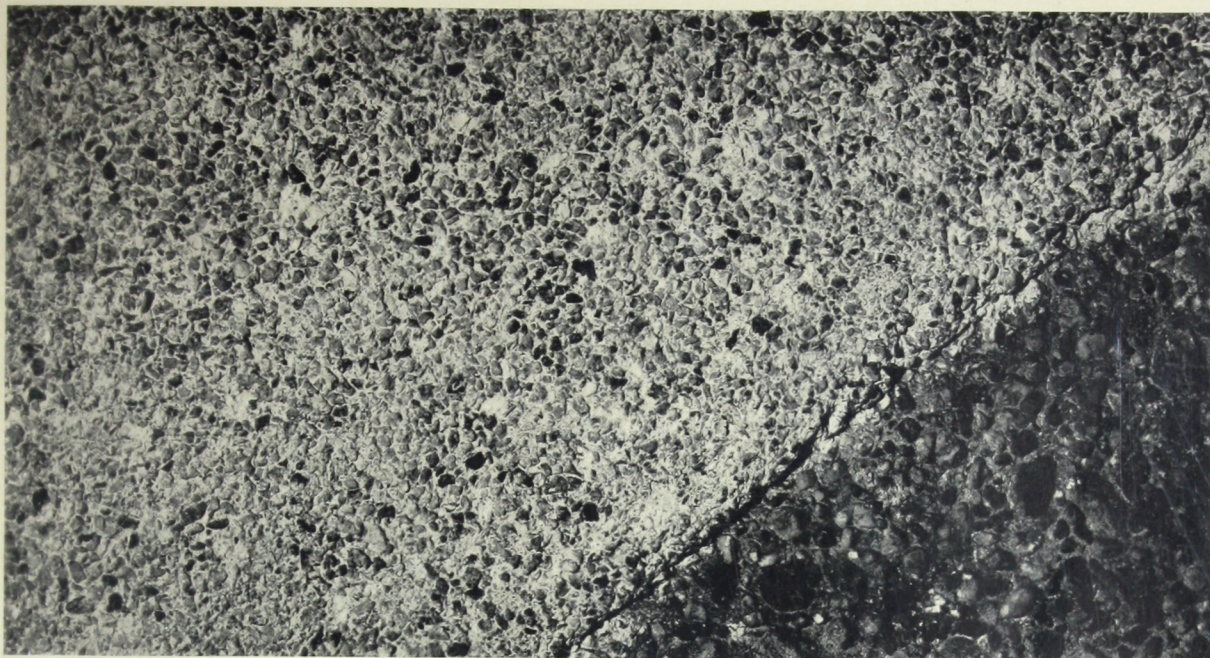
Nor can frost or the elements affect this unity, for the union is as true and as lasting as is the union of the cement in the concrete with the clean stone with which it was mixed in making that concrete. "Clean stone" is a first requisite in making concrete; and it is equally a requisite for bond.

The Labor Cost of Con-Texing For Bond

The labor cost of Con-Tex bond-surfacing is about $\frac{3}{4}$ c. per square foot. All that is necessary with Con-Tex is to brush Form Con-Tex, a paint-like material, on the forms for form-cast surfaces and brush or spray Top Surface Con-Tex on top-exposed surfaces. Then, when the concrete has set and hardened, these surfaces are wire brushed or wire broomed to remove the skin surface loosened by Con-Tex.

The Total Cost of Con-Texing For Bond

This cost, together with the cost of Con-Tex itself, brings the cost of a Bonding Surface on form-cast concrete well below 5c. per square foot and the cost of a top-surface operation below 4c. per square foot. The exact cost depends necessarily on the skill and efficiency of the gang. Even inferior hacking or bush-hammering cost 9c. at a minimum and thorough hacking or bush-hammering up to 30 or even 50c. a square foot.



Revealed Stucco over Bond-Surfaced Concrete. A permanent, colorful and attractive finish.

The Method of Construction with Stucco

Any concrete, then, at the time of making, can be equipped by Con-Tex with a full area, clean stone bond surface, ready for the application of stucco. And as this stucco-over-concrete building system has become developed by large-scale operations, it has become customary to run the structure up to full eave or cornice height in rough concrete. Then, working from scaffolds of any desired type, stucco is applied from the top down, thus doing away with trouble from any slop from falling mortar and also doing away with any necessity for guarding against it.

One-Coat and Two-Coat Stucco Work Over Surfaced Concrete

Obviously, either one-coat or two-coat stucco may be applied. One-coat stucco is easiest and possibly best, for due to the wonderful bond surface produced by Con-Tex on the concrete, the stucco does not drop off and may be applied in one coat sufficiently thick for most truing-up operations.

Of course also, if proper scratching is done and the second coat, possibly of selected materials, is applied at the proper time, extra-fine results as to finish and texture may be had where desired.

Revealing Color and Texture in Stucco by Stucco Con-Tex

The possibilities, once a bond is furnished by Bonding Con-Tex, are limited only by creative and artistic imagination, for another variety of Con-Tex here comes forward to play its part.

It was before noted that floated stucco work is tinged

and stained by the dead color of hydrated cement. But if, after screeding and floating, stucco Con-Tex is sprayed by a hand-spray over the stucco, this dead color is done away with through doing away with the covering cement layer. This removed layer is exceedingly thin, as Stucco Con-Tex is so made as to remove only this layer and to a thickness sufficient to give a slight reveal to the aggregates, selected or otherwise, which have been incorporated in the stucco.

Stucco Con-Tex Gives Texture and Color and Prevents Cracking

In this way stucco can have a permanent color, without resort to mortar colors for the sole effect. Of course, if mortar color is desired to contrast with the aggregates in color, this also may be done.

And not of least importance, stucco Con-Tex, by rendering non-active this surface film of cement, prevents these common "checkings" that so often disfigure stucco and not infrequently lead to its disintegrations by frost and other agencies.

An Economical Extension and Improvement of the Uses of Concrete

An economical and more effective building system is, then, offered for structures large and small by (1st) the inherent excellencies of concrete and stucco; and (2nd) developing these excellencies first, by Bonding Con-Tex to provide a bond surface on the concrete for the stucco and second, by developing color and texture in and on the stucco by the use of stucco Con-Tex.



How to Specify CON-TEX

It is always best to specify Con-Text by name.

The following form is commonly used:

Form Surface Stucco Bond Work "All surfaces of Form-Cast concrete indicated on the plans or in the specifications or otherwise designated to be surface finished to receive applied stucco or mortar coats, shall obtain a revealed stone surface for this purpose by the use of Form Con-Text, Bonding Grade, as made and supplied by the Concrete Surface Corporation, 342 Madison Avenue, New York City.

"This Form Bonding Con-Text shall be applied to all areas of forms where such surfaces are required, in an even coat before casting the concrete, and care shall be taken to completely cover all areas with the Con-Text. The Con-Text shall be allowed to dry thoroughly before being exposed to rain, weather or the elements.

"After the concrete has set, the loosened surface of the concrete shall be removed by wire brushes immediately after the forms are taken down. All loosened sand or cementitious material shall be thoroughly removed by this wire brushing to secure a full roughened area of cleanly exposed coarse aggregates, ready for bond with the applied stucco finish.

"All forms on re-use for further exposed aggregate surfaces for stucco bond purposes shall be cleaned of old concrete or mortar and then recoated throughout such areas with Form Bonding Con-Text before concrete is again poured against them."

Top Surface Stucco Bonding Work "All top surfaces of concrete indicated on the plans or in the specifications or otherwise designated to be surface-finished to receive stucco or mortar finishing coats or like applied materials, shall obtain this

surface by the use of Top Surface Con-Text, Bonding Grade, as made and supplied by the Concrete Surface Corporation, 342 Madison Avenue, New York City.

"All surfaces that are indicated on the plans or in the specifications, or otherwise designated to be surface finished for the reception of materials by exposing aggregates, shall be given an even coat or coats of Top Surface Con-Text by spraying or brushing on or by other approved means, and prior to the hard set of the concrete, taking care to completely cover all areas with the Con-Text.

"After the body of the concrete has set, the loosened material at the surface affected by Con-Text shall be immediately removed by wire brooms or by other effective and approved means; and the surface so exposed shall then be thoroughly brushed and broomed until full roughened areas of cleanly exposed aggregates are obtained ready for bond with the applied materials."

Exposed Stucco Work "All stucco designated or indicated on the plans or in the specifications to be surface finished for texture and color, shall obtain this surface finish by the use of Stucco Con-Text.

"This Stucco Con-Text shall be applied to the stucco after screeding or finishing either by spray or by soft brush, taking care to thoroughly cover all areas. About 24 hours thereafter, the film surface of the stucco, together with the Stucco Con-Text, shall be removed by brushing with suitable brushes, so that a clean and even reveal on the stucco shall result, with proper exposure of the stucco aggregates throughout the designated areas."



How to Specify CON-TEX IN PUBLIC WORK *Where Trade Names are Not Permissible*

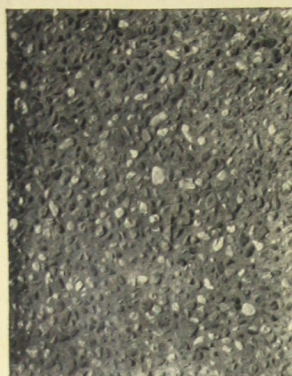
"All concrete surfaces indicated on the plans or in the specifications or otherwise designated to be surfaced or surface-finished for bond with applied materials shall be surface-finished for this purpose by the use of an approved liquid material painted on the forms before placing concrete in form work, or spread directly on the concrete in top surface work, or where so directed, to obtain full area, rough surfaces of cleanly revealed aggregate, on all such concretes as are to be waterproofed.

"The material used to produce this surface finish shall be an approved liquid coating applied to the forms, or in top surface work, applied to the concrete, before it has set; and this approved coating shall meet the following requirements: It shall be composed of a colloidal base carrying active materials; which latter shall operate only after coming in contact with the alkaline fluids of the concrete. This coating liquid shall not contain free acid; shall not contain any ingredient that will injure the aggregate, the reinforcement or the forms, and there shall be no after-effects injurious to the concrete or to applied materials. All surfaces, or forms for surfaces that are specified to be roughened bonding surfaces obtained by exposing aggregates, shall be given an even coat or coats of this liquid, taking care to completely cover all areas.

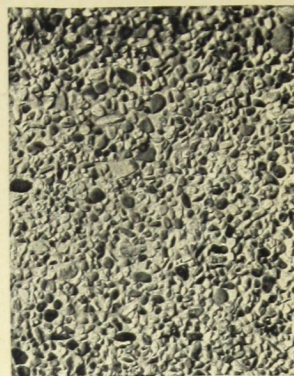
"Where such coating is applied to forms, after removal of forms, the loosened surface of the concrete shall be immediately removed with wire brushes or wire brooms or other effective and approved means until a full area rough bonding surface of cleanly exposed aggregates is obtained; and, at the architect's or engineer's discretion, the concrete shall then be thoroughly washed down with water."

"On this revealed-aggregate surface shall then be applied the finishing coat or coats of stucco or mortar; and a revealed surface of texture desired shall be obtained on these applied finishing coats by the use of a material as described above but of proper grade or strength to produce a light reveal, suited to the aggregates in the Stucco."

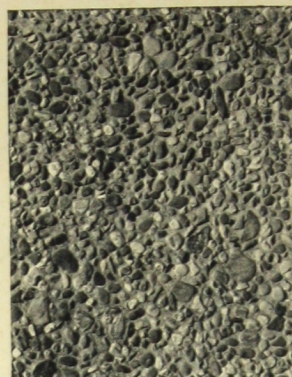
Coarse Stone Mixture Examples



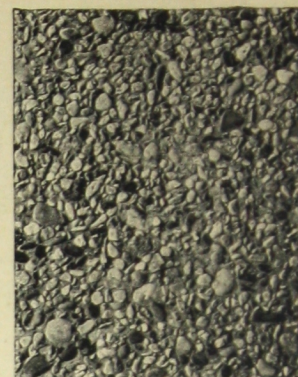
No. 1
Nearly 1 : 2 : 4
(Not enough stone)



No. 2
Mix—1 : 2 : 4½
(Better)



No. 3
Mix—1 : 2 : 5
(This mix best)



No. 4
Mix—1 : 2 : 6
(Too much stone)

Specifications for Concrete

UNIFORMITY in concrete is of the utmost importance. To secure uniformity, endurance, impermeability and high strength, we recommend that concrete, of whatever kind and for whatever purpose, be specified and proportioned on a basis of:

"One part cement, two parts sand and all the stone the mix will comfortably carry, with enough water to give a mushy consistency."

The above specification always works. It allows for any stone (whether crushed stone or gravel) for any size of stone or any changes in stone supplied, as well as for the characteristics of the sand used, which may change from hour to hour, and for job conditions as well.

We further recommend that specifications provide as follows:

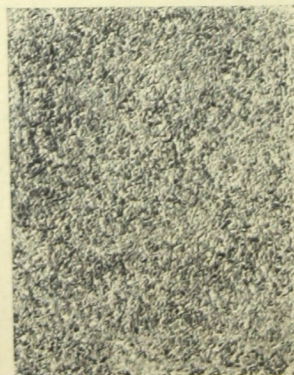
"All concrete shall be deposited evenly and continuously in forms. It shall not be spaded away from forms, but shall be well puddled; and shall be run up in a continuous pour to full height of forms by placing bulkheads at such intervals that a full day's work will consist of the quantity contained between bulkheads and to full height of forms."

"All bulkheads shall be coated with Form Bonding Con-Tex, and a clean-stone bonding surface shall be obtained at the end of each section, so that the abutting section shall thoroughly bond to and with each section previously poured."

Fine Stone Mixture Examples



No. A
1 : 2 : 4½
(Fair)



No. B
1 : 2 : 5½
(Better)



No. C
1 : 2 : 6
(Best)